

RANCHO SANTA ANA BOTANIC GARDEN
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OENOTHERA DELTOIDES COGNATA
SAN JOAQUIN VALLEY WHITE
EVENING-PRIMROSE

1943

RANCHO SANTA ANA BOTANIC GARDEN
of the
NATIVE PLANTS OF CALIFORNIA
Santa Ana Cañon, Orange County, California
Established 1927 in Memory of
JOHN W. BIXBY

OENOTHERA DELTOIDES COGNATA
SAN JOAQUIN VALLEY WHITE EVENING-PRIMROSE

Onagraceae

Evening-Primrose Family

Vigorous, coarse annual 1-2 ft. high, 1-3 ft. spread; central or primary stem usually erect, often 1 in. in diam.; lateral or basal branches spreading outward and upward, often over 2 ft. long; stems pale green to whitish, in age with a silvery or straw-colored, slightly exfoliating epidermis; leaves alternate, light green, petioles 1-2 in. long, blades oblong to lanceolate, 2-7 in. long, tapering gradually to base and more abruptly to apex, irregularly wavy-margined, with a few coarse, irregular teeth near base, surfaces nearly glabrous except for the long hairs along the margins. Flowers white, large, 3-4 in. across, borne singly in the axils, but congested at the tips of the branches, opening late in the afternoon, remaining open well into the next day, especially in cloudy weather, and gradually fading pink; calyx tube and ovary often over 2 in. long, thus the flowers appear to be produced on long pedicels; flower buds nodding, about $1\frac{1}{4}$ in. long, by $\frac{1}{2}$ in. thick, blunt-pointed, somewhat 4-lobed, covered with long, slightly curled hairs; calyx of 4 sepal's, turned to one side and reflexed as the flower opens, sometimes 2 remain partially united; calyx tube about $1\frac{1}{2}$ in. long; petals 4, obovate with a deep apical notch, $1\frac{1}{2}$ -2 in. long, by $1\frac{3}{4}$ - $2\frac{1}{4}$ in. broad, clear white, except for a small yellow blotch at base; stamens 8, attached at summit of calyx tube, filaments $\frac{3}{4}$ in. long, anthers versatile, $\frac{3}{8}$ in. long; style standing nearly an inch above the stamens and bearing a 4-parted stigma, each lobe of which is $\frac{1}{4}$ in. long; ovary inferior, 4-celled, 4-ridged, about 1 in. long, by $\frac{1}{8}$ in. thick, containing numerous ovules; after the flower fades it drops off at summit of ovary and the seed pod or capsule enlarges rapidly, becoming woody with an exfoliating epidermis, is 2-4 in. long, by $\frac{1}{4}$ in. thick at base, shedding its numerous seeds gradually as it splits from the summit; seeds narrowly ovoid, 1-16 in. long, light tan, but usually mottled with dark brown, borne in 1 row in each of the 4 cells. In germination the cotyledons are foliar, short-petioled, ovate, entire, about $\frac{3}{8}$ in. long; next leaves somewhat similar; the plants develop rosettes of basal leaves 6-12 in. across before any erect branches are produced. Flowers March and April; seeds May to July.

The genus *Oenothera* (ancient Greek name meaning wine and hunt; reason for application to this group of plants unknown) consists of about 100 species of North and South America and a single representative in Tasmania. *Oenothera* is an aggregate genus composed of numerous subgenera which some botanists regard as distinct genera. The plant under discussion is a member of the subgenus *Anogra*, characterized by white flowers, drooping buds, and capsules with seeds in 1 row in each cell. The 9 species of *Anogra* are found mainly in the western United States, southern Canada and northern Mexico. Two species occur in California, one of which is *O. californica*, a widespread perennial.

Oenothera deltoides cognata (Latin words for deltoid and related) was described in 1925 by Dr. W. L. Jepson (Professor of Botany at

the University of California) under the name of *O. trichocalyx* var. *cognata*, upon specimens collected by W. H. Brewer (1828-1910, botanist of the State Geological Survey, 1860-64) at Corral Hollow, Alameda Co. Dr. P. A. Munz (Professor of Botany at Pomona College, and student of the *Onagraceae*) maintains that the true *O. trichocalyx*, described by Nuttall in 1840, does not occur west of Utah, and uses the name *O. deltoides* for our western plants. The latter was described in 1845 by Torrey and Fremont, based upon specimens collected by Fremont, probably on the Mojave Desert. There are several well-marked varieties of this species, but we are here concerned only with the variety *cognata* which is confined to the San Joaquin Valley from Kern Co. to Sacramento Co., and to the adjacent Coast Ranges. The wild plants are characteristic of the sandy waste lands of the San Joaquin Valley and often cover large areas, making beautiful displays in March and April. Following flowering, the large plants break loose from their roots and form tumbleweeds which serve to spread the seeds throughout the country. In general appearance var. *cognata* does not differ markedly from the true *O. deltoides* of the Mojave and Colorado Deserts. However, the latter is usually a smaller plant, has grayer leaves, shorter straight hairs on the buds instead of curled, and thinner capsules.

We have grown *O. deltoides cognata* since 1933 when we obtained seeds in July, a short distance north of the Merced River, in the San Joaquin Valley. In propagating it, we have used the same procedure as for nearly 100 other species of California annual wild flowers. When grown in rows, the seeds are planted with a seeder which covers them lightly. Early fall or spring planting is satisfactory, but fall plantings do not germinate well unless the weather is still warm. Good success has been obtained by planting in double raised rows, after which the ground is thoroughly soaked by furrow irrigation. Thereafter, they need little irrigation and will bloom profusely in dry situations. After the seedlings are up they make little growth until the ground is warm again in February or March. They then grow rapidly and by late March begin to flower. Plants over 2 ft. in height and spread are average, and are covered daily with huge white flowers which open late each afternoon, remain open until late the next morning, or in cloudy weather nearly all day. Blooming continues well into May, but at the last of the season the plants become weedy. Seeds are harvested by pulling the entire plants about July, but require some work to obtain, since the woody capsules must be thoroughly dry in order to be easily broken open. When seeds are used for broadcasting only a small percentage grow, but since the plants are large, only an occasional one is needed to give a good effect.

We regard the San Joaquin Valley White Evening-Primrose as the most beautiful white-flowered annual California wildflower, and believe that it can be grown almost anywhere in California with little effort and good success. None of the other white Evening-Primroses rivals it, while other unrelated white wild flowers are so very different that they can hardly be considered in the same category.

CARL B. WOLF

RANCHO SANTA ANA BOTANIC GARDEN

Dedication of Garden Foundation to the Board of Trustees for the Rancho Santa Ana Botanic Garden of the Native Plants of California:

"THE NATURE, OBJECT AND PURPOSE OF THE INSTITUTION
HEREBY FOUNDED AND TO BE MAINTAINED HEREUNDER.

ITS NATURE: A botanic garden of the native plants of California, herbarium and botanical library, containing living and/or preserved specimens of trees, plants and flowers native to California, and literature relating thereto.

ITS OBJECT: The preservation and improvement of the property now transferred and such property as may hereafter be transferred to the Trustees for those who not only wish to enjoy, but to study, assembled in one accessible locality, native California plants; and for the advancement of science and education with reference to plant life indigenous to the State of California.

ITS PURPOSES: (a) An institution founded primarily for scientific research in the field of local botany.

(b) To preserve the native California flora, try to replenish the depleted supply of some of the rarest plants which are rapidly being exterminated, and bring together in a comparatively small area as complete a collection of the rich store of native California plants as can be grown in this southern section of the state, thereby promoting the general welfare of the people of the state by providing the means for encouraging and carrying on the above mentioned activities in said state and by doing such other things as may be necessary and desirable to carry out the objects hereof."

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